



**NANYANG
TECHNOLOGICAL
UNIVERSITY**
SINGAPORE



**5th World Conference
on Research Integrity**

RESEARCH & RESEARCH INTEGRITY – A KEY PRIORITY FOR A YOUNG & FAST-RISING UNIVERSITY

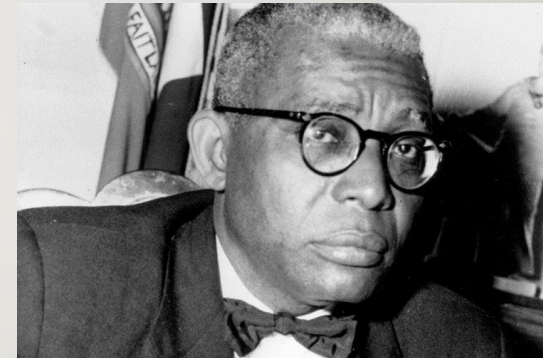
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5TH WORLD CONFERENCE ON RESEARCH INTEGRITY
AMSTERDAM, THE NETHERLANDS
30 MAY 2017



INTEGRITY IN EVERYTHING; INTEGRITY IS EVERYTHING

- Society
- Politicians
- Banks
- Car dealers
- Car manufacturers
- Universities / Research Institutions



WHY AM I HERE? – MY BACKGROUND



**Rector,
Linköping University
(1999 – 2003)**



**Chief Executive,
European Science Foundation
(2004 – 2007)**

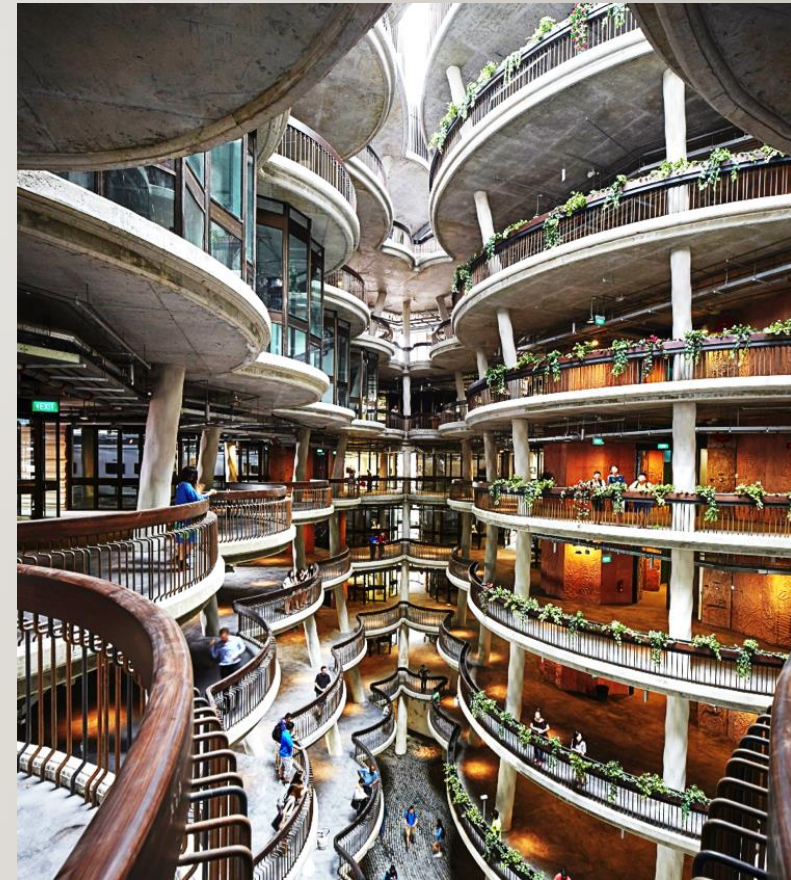


**Provost, NTU Singapore
(2007 – 2011)
President, NTU Singapore
(2011 –)**

- As CEO of ESF: Initiated the 1st World Conference on Research Integrity, Lisbon, 2007
- At NTU Singapore: Involved in the organisation of the 2nd World Conference on Research Integrity, Singapore, 2010
- Setting up a research integrity system at a big Asian university – NTU Singapore

NANYANG TECHNOLOGICAL UNIVERSITY (NTU) SINGAPORE: BACKGROUND

- Founded in 1991
- ≈33,500 students, ≈4,500 faculty & researchers
- Highly ranked:
 - 13th in the World (QS);
 - 3rd in Asia (QS);
 - 1st among young universities (QS)
- Bibliometric: Normalised citation impact no. 1 in Asia
- **Very rapid transformation into a research-intensive university**
- **Introduction of many new disciplines**



CHALLENGES TO MANAGE INTEGRITY IN A RAPIDLY DEVELOPING YOUNG RESEARCH-INTENSIVE UNIVERSITY

- No legacy research culture at NTU or in Singapore
- No prior regulations & processes related to research integrity
- Strong recruitment from all over the World & from different ethnic & academic cultures
- Highly competitive environment



AGGRAVATING FACTORS

- No consensus on the issue & definition of plagiarism
- More hierarchical systems
- Research integrity regulations seen as additional bureaucracy
- External funders strongly KPIs driven
- Start of sensitive new areas: Medicine

**No matter how
bad things
are, you can
always make
things worse.**

Source: www.boldomatic.com

HOW DID WE GET GOING?

- Recruited Co-Chair of First World Conference on Research Integrity: Tony Mayer
- Oversaw a major publication (2000) on research integrity at ESF, Strasbourg, France
- Consultant to group developing the European Code of Conduct
- Singapore representative to OECD Coordinating Group for Facilitating International Research Misconduct Investigations
- Research Integrity Officer at NTU Singapore since 2007, developed policy & procedures and investigated cases



WHAT DID WE DO?

- Developed RI policy statement & procedures (drawing on The Office of Research Integrity as source)
- Designated a Research Integrity Officer in the President's Office away from Colleges, Schools & Institutes
- Created local Network of Research Integrity Points of Contact
- Raised awareness at all levels, including online declaration on appointment (faculty & research staff) or admission (students)
- Started education programs
- Whistle-blowing system



WHAT DID WE DO?

- Website with information
- Accepted as important by Senior Management & Board of Trustees
- Seen also as part of Enterprise Risk Management: Singapore sensitive to reputational risk
- Created, updated & streamlined Institutional Review Boards (biomedicine, social sciences, exercise & physical endurance)
- Streamlined NTU Institutional Animal Care & Use Committee with new animal facilities (mice & primates)
- All PhD theses 'tested' for plagiarism



WHAT ARE WE DOING?

- Now created a Research Integrity & Ethics Office to provide support especially in education & information
- Updating online educational programmes with package for faculty
- Reviewing PhD education which will include RI as an essential part with more dedicated face-to-face instruction
- Special courses eg. imagery manipulation
- Took national initiative to bring other research institutions (A*STAR, NUS & SUTD) together to harmonise approaches: Major national workshop in Nov 2016 with 350 participants
- Joint statement on publication ethics



RESEARCH INTEGRITY ISSUES UNRAVELLED

- Plagiarism
- Authorship disputes
- Poor supervision
- Copyright infringements
- Frauds / fabrication of data (4 cases to be presented)



CASE I

THE STRAITS TIMES

4 June, 2016

NTU retracts NIE academic papers after malpractice investigations

Nanyang Technological University (NTU) has retracted 11 academic papers authored by researchers from the National Institute of Education (NIE), following investigations into research malpractice.

Eight of the papers cite the lead author as _____ a well-known local expert in the area



2016年6月4日 星期六 02:44 PM

或涉不实数据 南大撤回11篇学术论文

(联合早报网讯) 南洋理工大学撤回国立教育学院研究院的11篇学术论文，原因是研究过程或涉不正当行为和不详实数据。所有论文都涉及本地知名特别教育专家 _____ 博士。

CASE I

- Sensitive area of children with special educational needs
- Imported project when recruited to NTU/NIE in 2006 stating that contract was signed to write 10 papers on as yet unseen data!
- Research project accepted & not checked
- External whistle-blower (professional in same field) who eventually involved police, Ministry of Education & politicians
- Initial resistance from Institute concerned within NTU
- Case alleged data fabrication through an invented person & invented organisation

CASE I

- Role of university to investigate academic misconduct
- Difficult to engage in 'detective – private eye' work esp. in another country with another language
- Data not available to check – claim it had been returned to the missing originators
- Later, some data produced, consent forms subjected to handwriting experts & doubts raised
- Faculty in question resigned prior to completion of investigation
- NTU seeks retractions of papers on basis of inability to authenticate data & lack of ethical approvals

CASE I

- Long drawn-out & complex case
- Limits to university's powers of investigation
- Retractions imposed on respondent
- Respondent now up to 21 retractions!
- Whistle-blower contributed
- Raises trust on the appointment of faculty importing existing research projects & commitments – how far should one go in checking 'imported' research?

CASE 2

- Detailed forensic examination of Western blot images
- Case proven
- Two Doctorates revoked
- PI dismissed for ‘wilful negligence’
- Key scientific area: Muscle-wasting & cancer – medical relevance with high scientific impact

THE STRAITS TIMES

3 Singapore-based scientists linked to research fraud

16 July, 2016

Their research was hailed as a breakthrough in the fight against killers such as obesity and diabetes.

But now, at least three scientists working in top Singapore institutions and funded by major government organisations have been linked to scientific fraud in what could emerge as one of the biggest such cases here.

So far, two of the researchers have left their posts and another has had his PhD revoked, and six of their papers have been retracted.

CASE 2

- ‘Classical’ Life Sciences case of fraudulent imagery manipulation
- Involved 3 institutions in Singapore (NTU, A*STAR & NUS) & across countries: Singapore / United States of America / New Zealand
- Thorough & comparative analysis of imagery completed for all papers published by the group over a 7-yr period; Conducted both internally & with an external consultant

NTU professor fired for data falsification

Data falsification, alterations found in six of his team's research papers

the
newspaper

16 July, 2016

CASE 2: CONSEQUENCES

- Two PhDs revoked
- 9 papers out of group output of 30 retracted
- PI: Full Professor dismissed for 'wilful negligence' creating conditions for misconduct & turning a 'blind eye'
- Students left without supervisor (direct)
- Students not accepted on joint programmes elsewhere (indirect) by tarnished reputation of laboratory
- Grant agency seeking repayment

CASE 3: PLAGIARISM OF IMAGERY

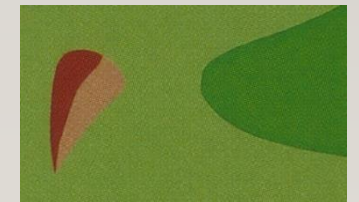
- Consists of 2 incidents:
 - In the 1st case, NTU became aware of allegations through a public blog site
 - The 2nd case was a similar complaint in relation to a report on an internal grant
- Misconduct allegations referred to:
 - Plagiarism of images & of text
 - Failure to provide provenance of images
 - Possible copyright breaches
 - Suspect payments

CASE 3: PLAGIARISM OF IMAGERY

Adventures in copyright violation: The curious case of Utopian Constructions

“...I eventually reached professor xxx in the School of Art, Design and Media, College of Humanities, Arts and Social Sciences (NTU). I told him of my concerns, the site was using 73 poster images from my book *Revolucion! Cuban Poster Art* (Chronicle Books, 2003) & 90 poster images from *Chinese Posters: Art from the Great Proletarian Cultural Revolution* (Chronicle Books, 2007) for which I was the co-author & responsible for all image provision.... I had two partners in pursuing this complaint, my publisher & the East Asian Library. Both wrote letters supporting my case. Although Dr xxxx agreed to the first request, he insisted on posting high-resolution images & did not have enough information to answer my third request”

Docs Populi – March 20, 2013



CASE 3

- Public accusation of plagiarism on blog site
- Lengthy investigation
- Imagery plagiarism & so external software experts needed
- Plagiarism & copyright infringement proven
- Misrepresentation of university & Ministry of Education
- Investigation uncovered suspect payments out of country
- Full Professor dismissed

CASE 4: HACKING TO INCREASE CITATIONS!

- Research Fellow reported to have hacked into Elsevier review site & referred to NTU
- Investigation delayed due to publishers legal advisers
- Case proven – 122 instances of hacking!
- Reason was an attempt to improve the respondent's own citation record
- Respondent resigned but NTU referred the case to the Singapore Police Force under Misuse of Computers legislation
- New information: Respondent seeking academic post in his home country – should NTU proactively follow up?
- Pathetic obsession with citations for career advancement



CONCLUSIONS

- Challenges of developing research integrity in a rapidly-developing university in a competitive environment
- Aggravating factors such as hierarchy, heterogeneous faculty & “tolerance”
- Investigations of research integrity cases need competencies outside the traditional academic framework
- Sharing of experiences



SUMMARY

**NO UNIVERSITY OR INSTITUTION
CAN BE IMMUNE TO RESEARCH FRAUD**
WE CAN ALL LEARN FROM EACH OTHER

Thank you